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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,889	10/31/2003	Qing Ma	42.P16639	2954

7590 07/25/2005

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EXAMINER

SUMMONS, BARBARA

ART UNIT	PAPER NUMBER
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2817

DATE MAILED: 07/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,889

Applicant(s)

MA ET AL.

Examiner

Barbara Summons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 14-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings and Specification

1. The amendment received 05 May 2005 has overcome objections to the drawings and the specification, and these objections have been withdrawn.

Withdrawn Claim Objections

2. The amendment received 05 May 2005 has overcome the claim objections, and the claim objections have been withdrawn.

Withdrawn Claim Rejections - 35 USC § 112

3. The amendment received 05 May 2005 has overcome the claim rejections under 35 USC § 112, and these claim rejections have been withdrawn.

Maintained Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-3, 6, 7, 14-16, 19, 20, 22-25, 28, 29, 31, 32, 35, 37 and 41 are rejected under 35 U.S.C. §§ 102(a) and 102(e) as being anticipated by Ohara et al. Published

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U.S. Application No. 2003/0067368 (of record) for reasons of record (see paragraph 8 of the prior Office action) with the amendments to the claims addressed below.

Basically, Claims 1, 14, 22, 23 and 31 have been amended to include the feature that matching the impedance of the FBAR filter to input/output circuits is "based upon the effective area of the FBAR filter". The impedance of FBAR filters is inherently dependent upon their effective area (see other art of record cited below as evidence). Consequently, any impedance matching of FBAR filters, such as is done by the input and output impedance matching units of Ohara et al. (see elements 13 in Fig. 17), must inherently take into consideration and be "based upon" the effective area of the FBAR filter in question.

6. Claims 1-3, 12 and 22 are rejected under 35 U.S.C. § 102(e) as being anticipated by Ella et al. U.S. 6,670,866 (of record) for reasons of record (see paragraph 9 of the prior Office action).

Regarding the amendments to claims 1 and 22, the impedance matching performed by the balun impedance matching unit 10 (see Figs. 8-10) must be inherently "based upon the effective area of the FBAR filter" because the impedance of the FBAR filter is inherently dependent upon its effective area as discussed above. That is, any impedance matching scenario for matching the impedance of FBAR filters to input/output circuits involves the given impedance of the input/output circuit to be connected, and the given impedance of the FBAR filter, which is inherently a function of its effective area, as evidenced by the prior art cited below.

Maintained Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 4, 5, 8-11, 13, 17, 18, 21, 26, 27, 30, 33, 34, 36, 38, 39, 40 and 42 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ohara et al. U.S. Published Application No. 2003/0067368 (of record) for reasons of record (see paragraph 11 of the prior Office action).

Response to Arguments

9. Applicant's arguments filed 05 May 2005 have been fully considered but they are deemed not persuasive.

Applicants argue that "neither Ohara nor Ella disclose that the impedance matching unit matches the impedance of the FBAR to an input or output circuit based on the effective area of the FBAR filter" (see page 11, lines 8-10 of the amendment

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received 05 May 2005). This argument is considered not persuasive because the impedance of FBAR filters are inherently "based upon" their effective area (see U.S. 6,462,631 and 6,262,637 cited below as evidence), such that when impedance matching the FBAR filter having a given impedance to an input/output circuit with a given impedance, the matching must be inherently "based upon the effective area of the FBAR filter" as that is what determines the given impedance of the FBAR filter. That is, any impedance matching involving FBAR filters is based upon the impedance of the FBAR filter, which is in turn, inherently based upon the effective area of the FBAR filter. The feature that Applicants have added to the claims is merely an intuitive and necessary step in determining an impedance matching unit for providing impedance matching between FBAR filters and external circuitry.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Bradley et al. U.S. 6,262,637 provides evidence that the impedance of FBAR filters is inherently based upon the effective area of the FBAR filter (col. 13, lines 23-27).

Bradley U.S. 6,462,631 also provides evidence that the impedance of FBAR filters is inherently based upon the effective area of the resonators (see col. 6, lines 35-36) and thus the cumulative effective area of the filter.

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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July 21, 2005



**BARBARA SUMMONS
PRIMARY EXAMINER**